Published in final edited form as:

Fertil Steril. 2013 August ; 100(2): 351–352. doi:10.1016/j.fertnstert.2013.04.014.

Training in embryo transfer: how should it be done?

Lauren Bishop, M.D.^a, Paul R. Brezina, M.D., M.B.A.^b, and James Segars, M.D.^c

^aDepartment of Obstetrics and Gynecology, Georgetown University, Washington Hospital Center, Washington, District of Columbia ^bFertility Associates of Memphis, Memphis, Tennessee

^cProgram in Reproduction and Adult Endocrinology Clinical Research Center, Bethesda, Maryland

There are two essential technical skills required of all assisted reproductive technology (ART) providers: oocyte retrieval and embryo transfer (ET). Of the two, ET is by far the more difficult to master. Pregnancy rates are affected by a variety of factors including patient age, the cause of infertility, embryo quality, endometrial thickness, and duration of gonadotropin exposure. In addition, differences in ET technique may affect success rates at ART, such as use of ultrasound guidance or the type of ET catheter. Some ETs may be traumatic or bloody, which adversely affects the likelihood of pregnancy. The soft ET catheter necessitates mastery of the skill required to negotiate the catheter into the uterus without trauma. Unfortunately, not all providers are equally adept; differences in success rates exist even among members of the same practice using similar techniques and may be related to the experience and dexterity of each individual practitioner (1). Since it is clear that acquisition of skills is needed for mastery of ET, and level of skill affects pregnancy rates, a conundrum is created: how can these skills be imparted to trainees without reducing pregnancy rates?

Skill acquisition for ET during training has been reported, and one study suggests that roughly 50 ETs are sufficient (2). Despite knowledge of the role of the provider and the requisite acquisition of skills, training for ET in the United States is varied, and as recently as 2007, 44% of trainees across the United States who responded to a survey did not perform any ETs during fellowship training (3). In 2012, a 12-question survey was conducted of all fellows who had graduated from a single ART training program from 1985 to 2009 (P. Brezina, personal communication). Of 40 fellows who completed training during that time, 30 trainees (75%) responded. Forty-one percent of trainees reported performing ETs during fellowship (group 1ET), versus 59% who did not report ET experience during fellowship (group no-ET). The survey evaluated the professional experience of respondents during the first year after their fellowship. When asked whether the fellowship experience effectively prepared a trainee for performing ET after graduation, the no-ET group was significantly ($P=.025$) more likely, 41% (7/17), to respond “not at all,” as compared with the 1ET group, 8% (1/12). Notably, those in the no-ET group, 50% (8/16), were more likely ($P=.045$) than those in the 1ET group, 16% (2/12), to need (moderate or heavy) training by colleagues in the ET technique after graduation from their fellowship. So the problem is that many trainees in the United States do not perform “live” embryo ET training during fellowship; as a surrogate, trainees conduct mock ETs or use the ET catheter to perform

IUIs. In such cases, trainees acquire experience with live ET from their colleagues after graduation.

A tenable resolution to the current conundrum of ET training requires a solution that meets the needs of the three stakeholders: trainees, ART training programs, and patients. Reproductive Endocrinology and Infertility (REI) fellows with no experience in ET require the clinical training and guidance to develop the skills needed to optimize success rates. Training programs strive to find a balance between imparting skills without reducing pregnancy rates while maintaining patient satisfaction. Patients deserve an optimal ET and understandably demand every precaution to ensure their highest chances of pregnancy. In the United States, training programs are required to instruct fellows in ET skills, even if the training does not involve the use of live embryos. As noted previously, the answer some programs have chosen is to provide training and experience with the ET catheter using IUIs.

The manuscript by Shah et al. (4) is therefore of great interest because the authors examined the role of training with IUIs before performing live ETs. This study adds to the literature on ET as it evaluates the efficacy of a commonly used training model. Moreover, the study could only be conducted in a program where trainees perform both live ET and IUI training. The central question the study addressed was, Will trainees become more proficient with the ET catheter and placement technique after an IUI instructional program and thus show increased pregnancy rates? The answer from this study appears to be no. The study controlled for improved IVF success rates over time by comparing the odds of clinical pregnancies between experienced faculty and fellows during the same time period with one group requiring 100 IUIs before starting ET. Fellows in the preintervention group actually required fewer ETs than those with the training to surpass the average pregnancy rate of attending physicians at that time. These data suggest that live ET is best, and ET success is a function of the number of live ETs. Thus, while there are some obvious limitations to the study, IUIs might not be a suitable substitute for a live ET.

In light of the findings of Shah et al. (4), we are again faced with the question of how to impart ET skills without reducing pregnancy rates? Our concern is now heightened as the IUI training method is currently used at many institutions, but it did not affect proficiency. While the solution will remain the responsibility of individual training programs, the following approaches have been used by some institutions. One approach is to have trainees perform a mock transfer with the catheter under ultrasound guidance immediately before the staff or trainee performs the live ET. Mock transfers have been shown to improve implantation and pregnancy rates and have also been shown to significantly reduce the incidence of difficult transfers during ET. Not only can a mock transfer provide information regarding the ease of passage, but the stress of the ET scenario may provide a more realistic experience for the trainee. Patients are likely to find this option acceptable as it should not reduce pregnancy rates. Of course, this possible solution will need to be rigorously tested.

A second possible strategy is to have the trainee perform the mock transfer and if the catheter passes easily into the uterus, then simply leave the catheter in place and load the embryos into a second inner catheter to be transferred into the uterus. This is known as the afterload method of ET (5) and differs from a simple mock transfer because once access to

the endometrial cavity is achieved under direct guidance by the staff there is no additional step of catheter removal and replacement.

In summary, it is clear that ET is an essential, acquired ART skill and fellows must be adequately trained without jeopardizing pregnancy rates among patients. Based on the article by Shah et al. (4), surrogate training with IUI may not be the best option. Techniques such as mock transfers before ET or the afterload method may be a solution to this current conundrum but will need to be evaluated in studies, such as that conducted by Shah et al. (4).

REFERENCES

1. Karande VC, Morris R, Chapman C, Rinehart J, Gleicher N. Impact of the “physician factor” on pregnancy rates in a large assisted reproductive technology program: do too many cooks spoil the broth? *Fertil Steril.* 1999; 71:1001–1009. [PubMed: 10360901]
2. Papageorgiou TC, Hearn-Stokes RM, Leondires MP, Miller BT, Chakraborty P, Cruess D, et al. Training of providers in embryo transfer: what is the minimum number of transfers required for proficiency? *Hum Reprod.* 2001; 16:1415–1419. [PubMed: 11425822]
3. Wittenberger MD, Catherino WH, Armstrong AY. Role of embryo transfer in fellowship training. *Fertil Steril.* 2007; 88:1014–1015. [PubMed: 17412339]
4. Shah DK, Missmer SA, Correia KFB, Racowsky C, Ginsburg E. Efficacy of intrauterine inseminations as a training modality for performing embryo transfer in reproductive endocrinology and infertility fellowship programs. *Fertil Steril.* 2013; 100:386–391. [PubMed: 23602318]
5. Neithardt AB, Segars JH, Hennessy S, James AN, McKeeby JL. Embryo afterloading: a refinement in embryo transfer technique that may increase clinic pregnancy. *Fertil Steril.* 2005; 83:710–714. [PubMed: 15749502]